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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/349,211	07/02/1999	TATSUYA YOSHIDA	381NP/47981	6315

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EXAMINER

DEBERADINIS, ROBERT L

ART UNIT	PAPER NUMBER
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2836

DATE MAILED: 08/27/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/349,211

Applicant(s)

YOSHIDA ET AL.

Examiner

Robert DeBeradinis

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 June 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 and 18-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1,2 and 18-25 is/are allowed.
- 6) ☐ Claim(s) _____ is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 July 1999 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 6/26/03 has been entered.

Claim Rejections - 35 USC § 112

Claim 6 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim claims, "said control apparatus...". "a first control apparatus and a second control apparatus...". It is unclear which control apparatus is being referred to.

Claim 11 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 11 claims a drive circuit connected to an electric power line the drive circuit is between the load control module and the one other module than there is a relay for opening a connection that branches from said power line to a particular load, the

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arrangement of the relay with the one other module, the branching, drive circuit and the particular load this whole arrangement of the parts is unclear.

Claim 12 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The Applicant claims ...an accessory switch connected to said battery through a fourth fuse... and ...an accessory switch, to a fifth fuse.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 3, 9 are rejected under 35 U.S.C. 102(b) as being anticipated by KIM 5,637,967.

Regarding claims 3, 9.

KIM discloses a power supply apparatus for a vehicle, comprising:

A battery (BT);

A load drive electric power line wired in said interior of said vehicle from the battery through a first fuse (FS2), for driving a vehicle load (A);

A control circuit drive electric power line wired in said interior of said vehicle from battery through a second fuse (FS1), for driving a control apparatus (controller 14); and

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At least one control apparatus including:

A control circuit which is supplied with power from said control circuit drive electric power line; and

A load drive circuit between said load drive electric power line and said load (FET1), for controlling a supply of power to said load in response to a signal from said control circuit.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 4, 7, 8, 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over KIM 5,637,967.

Regarding claims 4.

KIM discloses a power supply apparatus according to claim 3 including a shutdown circuit for performing a shutdown of an electric line between said fuse and said load drive circuit in response to a signal from said control circuit.

KIM does not teach an over-current detection apparatus provided between said load drive circuit and said first fuse, for detecting an over-current condition of said load drive circuit and communicating said detected current condition to said control circuit.

The Examiner takes official notice. Detecting over current conditions and controlling the application of power to a load when over-current conditions are present is well known in the art.

It would have been obvious to one having ordinary skill in the art at the time of this invention to include a current sensing device to sense the current drawn by the motor (A) and to provide a signal to the controller in the event the motor current exceeds a limit. The motivation to shutdown the electric line between said fuse and said load would be to protect the motor from overheating.

Regarding claim 7.

KIM discloses over current protection, claim 4 above.

The Examiner takes official notice. Detecting a short circuit requires the ability to detect an over-current condition.

It would have been obvious to one having ordinary skill in the art at the time of this invention to set the current limit level of claim 4 to sense a short circuit condition. The motivation to limit the short circuit current would be to protect the system from overheating.

Regarding claim 8.

KIM discloses:

A battery;

A first power supply system wired in an interior of a vehicle through a first circuit including a first fuse from the battery, for supplying power to a running control load of said vehicle;

A second power supply system wired in said interior of said vehicle through a second circuit including a second fuse from said battery, for supplying power to a control apparatus for said vehicle.

KIM does not disclose a third power supply system wired in said interior of said vehicle... The third power supply system is consider a mere duplication of parts and has no patentable significance because no new and unexpected results is produced.

It would have been obvious to one having ordinary skill in the art at the time of this invention to add a third power supply. The motivation would be to supply power to a third load independent of the first and second power supply systems.

Regarding claim 10.

KIM discloses:

a vehicle mounted power supply;

a control circuit (14) in which a load drive signal (FETDRV) is generated and a load drive circuit for controlling a power supply to a load according to a drive signal from said control circuit.

KIM does not disclose:

A plurality of control modules;

A first, relatively larger power line for supplying load drive power from said vehicle mounted power supply through a first fuse via at least two of said control modules; and

A second relatively smaller power line for supplying control circuit power from said vehicle mounted power supply through a second fuse via control circuits of said respective control modules; wherein

The first power line is thicker than the second power line.

The Examiner takes official notice. In the context of this claim a plurality of control modules is a mere duplication of parts and it is well known in the art that power lines supplying power to a load are thicker than power lines supplying power to control circuits for the mere fact that the load current supplied to the load is larger than the current supplied to the control circuits and that the thicker line is used to reduce line losses produced by the large load currents.

It would have been obvious to one having ordinary skill in the art at the time of this invention to provide a plurality of control modules and to use thick power lines, thicker than the power lines supplying the power to the control circuits. The motivation to provide a plurality of control modules would be to control a plurality of loads and the motivation to use thick power lines to supply power to the loads would be to reduce power losses due to high load currents.

Claims 13, 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over KONI 5,808,371 in view of KATO 5,856,711

Regarding claims 13, 14

KON'I discloses;

a load control apparatus for receiving load drive power from a vehicle mounted power supply through an ignition switch (figure 15);

A shutdown apparatus provided in an electrical path of a power input portion of said control apparatus (figure 15, IPD);

A first driver circuit for supplying power to a first load through said shutdown apparatus (IPD in series with load 44);

A second driver circuit for supplying power to a second load via an indirect path of said shutdown apparatus (IPD in series with 42).

KON'I does not disclose a control apparatus which distributes electrical power from a vehicle mounted power supply through a fuse.

KATO discloses a control apparatus which distributes electrical power from a vehicle mounted power supply through a fuse.

It would have been obvious to one having ordinary skill in the art at the time of this invention to provide a fuse in series with said control apparatus. The motivation to provide a fuse would be to protect the control apparatus from a short circuit.

Claims 18, 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over KATO 5,856,711.

Regarding claim 18.

KATO discloses:

A vehicle mounted power supply;

A relay having a relay coil which interruptibly receives power from said vehicle mounted power source; when at least one ignition switch or an accessory switch is closed; and a relay contact which is closed when said relay coil receives power;

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A load control module having a power distribution function connected to said vehicle mounted power supply through said relay contact (figure 1A);

Said load module comprising:

An input interface for taking in a load operation signal which is given by at least one of another control module (103a) and outside operation signal (switch operation) generation means;

A control for outputting a load drive signal in accordance with said operation signal which is taken in from said input interface; and

An output interface for outputting said load drive signal to a driver circuit from said control circuit.

KATO does not teach a relay coil which interruptibly receives power from said vehicle mounted power source when at least one of an ignition switch and an accessory switch is closed.

The Examiner takes official notice. Switching logic is well known to one having ordinary skill in the art of controlling the application of to a load.

It would have been obvious to one having ordinary skill in the art at the time of this invention to control a relay coil which interruptibly receives power from said vehicle mounted power supply when at least one of an ignition switch and an accessory switch is closed. The motivation would be to only power the accessory when the ignition switch is on.

Regarding claim 20.

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KATO disclose the power supply apparatus according to claim 18 wherein a fuse is connected between the battery and the relay.

KATO does not teach wherein the fuse is connected between said relay contact and said specific load.

The Examiner takes official notice. The circuit disclosed by KATO protects both the relay and the load.

It would have been obvious to one having ordinary skill in the art at the time of this invention to place the fuse between the relay contact and said specific load. The motivation would be to protect only the specific load

Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over KATO 5,856,711 in view of YOSHIDA 6,157,091.

Regarding claim 19.

KATO discloses a power supply apparatus according to claim 18.

KATO does not disclose wherein said input interface has a communication circuit.

YOSHIDA discloses a communication circuit (figure 5, 1433).

It would have been obvious to one having ordinary skill in the art at the time of this invention to include a communications circuit. The motivation would be to supply status information to the vehicle instrument panel to inform the driver the status of the power supply apparatus.

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Allowable Subject Matter

Claims 1, 2, 21-25 allowed.

The following is a statement of reasons for the indication of allowable subject matter: the prior art does not disclose an electrical power line includes a plurality of sensor electric lines.

Any inquiry concerning this communication should be directed to Robert L. DeBeradinis whose number is (703) 306- 5857. The Examiner can normally be reached Monday-Friday from 8:30 am to 5:00 pm.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Brian Sircus, can be reached on (703) 308-31190. The Fax phone number for this Group is (703) 308-7722.

RLD

AUGUST 15, 2003

